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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/554,260

09/19/2006

Johannes Menzel

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FOUR SEAGATE - EIGHTH FLOOR
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EXAMINER

LAWRENCE JR, FRANK M

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

02/09/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/554,260	Applicant(s) MENZEL, JOHANNES	
	Examiner Frank M. Lawrence	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 13-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/25/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a *single paragraph* on a separate sheet within the range of *50 to 150 words*. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 13-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "the absorbate" used in claims 13, 17, 20 and 21 is indefinite because the term lacks antecedent basis. In the gas separation art, "absorbate" refers to that which is absorbed. In this case the absorbate is sulphur components and any other components, however the claims are referring to the rich absorbent. It is suggested that "absorbate" be changed to sour-gas-rich, loaded, or laden absorbent to clarify the claims. Also in line 5 of claim 13, the phrase "any other components" is indefinite because it does not clearly indicate what the components may be or if it encompasses an unlimited scope of components. Claims 14-16 and 19 are rejected for depending from a rejected parent claim.
4. Claim 13 recites the limitation "the sour-gas-poor absorbent" in lines 8-9. There is insufficient antecedent basis for this limitation in the claim.

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5. Claim 13 recites the limitation "the resulting mixture" in line 9. There is insufficient antecedent basis for this limitation in the claim.

6. Claims 22 and 23 each recite the limitation "the recycle flash unit" in line 2. There is insufficient antecedent basis for this limitation in the claim. Claims 22 and 23 may be amended to depend from claim 20 to overcome this rejection.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 13 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Gross et al. (6,102,987).

9. Gross et al. '987 teach a process for sweetening natural gas, comprising feeding the natural gas (1) into an absorber for contact with a physical solvent (3), heating the obtained rich solvent (8) in heat exchangers (9, 10, 11), feeding the heated solvent into a flash unit (12) at a pressure of 10-150 bar to separate desorbed sour gas (13), cooling the desorbed sour gas (14) to condense vaporized absorbent (16), removing residual sour gas from the solvent in a stripper (18) using stripping gas, and cooling (10, 26) and recycling the lean solvent (24) from the stripper (see figures, col. 3, lines 41-55, col. 4, line 38 to col. 5, line 58). The process can include a recycle flash configuration (figure 2) that compresses separated sour gas (28) and recycles it back to the absorber, and sends separated solvent through a cascade of flash vessels

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(12a-12b). Desorbed sour gas from the flash unit (12) is inherently capable of being condensed by cooling water or cooling air.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 14-16, 19 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gross et al. '987 in view of Carnell et al. (6,139,605).

12. Gross et al. '987 disclose all of the limitations of the claims except that laden stripping gas is feed gas and is cooled and fed to the absorber simultaneously with the feed gas at a pressure higher than that of the absorber and that a sour gases from downstream flash vessels are compressed to a preferred pressure. Carnell et al. '605 discloses a sour gas absorption process comprising a stripping unit (32) that uses purified feed gas as a stripping gas (36) and sends cooled laden stripping gas (45) back to the absorber with feed gas (10) (see figure 1, col. 9, lines 50-64, col. 11, lines 31-53). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the process of Gross et al. '987 by using purified feed gas as stripping gas in order to avoid the need for an additional source of stripping gas, and to send recovered sour gas back to the absorber in order to further recover any residual natural gas and solvent remaining in the stream. The pressure of sour gas from flash vessels is considered to be a parameter that would have been routinely optimized by one having ordinary skill in the art in order to create a positive flow that overcomes pressure losses based on the desired application.

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13. Claims 18, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gross et al. '987 in view of Carnell et al. '605, and further in view of the European reference (EP 0968748 A2).

14. Gross et al. '987 in view of Carnell et al. '605 disclose all of the limitations of the claims except that the rich absorbent is pressurized to higher than the absorber or flash pressure. EP '748 discloses an acid gas desulfurization process comprising pressurizing rich solvent from an absorber (2) to greater than the absorber pressure before injecting it into a flash vessel (8) (see figure, machine translation of claim 1, paragraph 5 used from <http://epo.worldlingo.com>). It would have been obvious to one having ordinary skill in the art to modify the process of the primary references by using a higher pressure for the rich sorbent to be heated in order to provide an over-pressure that can be used to return freed gases to the column without the use of additional compressors.

Allowable Subject Matter

15. Claims 17 and 23 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional references listed on the attached PTO-892 form disclose natural gas desulfurization systems.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank M. Lawrence whose telephone number is 571-272-1161.

The examiner can normally be reached on Mon-Thurs 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Frank M. Lawrence/
Primary Examiner, Art Unit 1797

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